

WHAT IS CLAIMED IS:

- 2 1. A format for optical analysis of samples comprising:
an illumination input area;
4 an illumination light guide in optical communication with said illumination input
area and forming an input light path;
6 a read window disposed approximately perpendicularly to said input light path;
a detection guide disposed approximately parallel to said input light path having
8 one end proximate said read window and having a second end forming a detection
output; and
10 one or more overillumination redirection facets adapted to redirect light
overilluminating said illumination light guide away from said illumination light guide.
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- 14 2. The format of claim 1 wherein said illumination light guide, said read window,
and said detection guide comprise a light pathway, said format further comprising an
illumination redirection facet in said light pathway between said illumination light guide
16 and said read window.
- 18 3. The format of claim 1 wherein said illumination light guide, said read window,
and said detection guide comprise a light pathway, said format further comprising a
20 detection redirection facet in said light pathway between said read window and said
detection guide.
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- 24 4. The format of claim 1 further comprising a needle extending outwardly from said
read window and adapted to deposit a sample onto said read window.
- 26 5. The format of claim 1 further comprising a dried reagent on said read window.
- 28 6. The format of claim 1 wherein said illumination light guide has an illumination
light guide cross-sectional area and wherein said detection guide has a detection guide
30 cross-sectional area larger than said illumination light guide cross-sectional area.

2 7. The format of claim 1 wherein said illumination light guide and said detection
guide are molded of a unitary piece of optically clear material.

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6 8. The format of claim 1 wherein said illumination light guide and said detection
guide are molded of separate pieces of optically clear material joined into a single optical
format.

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10 9. The format of claim 1 wherein said one or more overillumination redirection
facets are adapted to direct light overilluminating said illumination light guide
approximately perpendicular to said illumination light guide.

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14 10. The format of claim 1 wherein said overillumination redirect facets number four
and further wherein each of said overillumination direction facets is disposed at
approximately a 45 degree angle from said illumination light guide.

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18 11. A molded, waveguiding optical format comprising:
an illumination input area;
an illumination light guide adapted to receive light from said illumination input
20 area;
first, second, third, and fourth overillumination redirection facets disposed at
22 approximately 45 degree angles from said illumination input area and adapted to direct
overilluminating light away from said illumination light guide;
24 an input illumination redirection facet disposed in a plane at approximately a 45
degree angle from said illumination guide;
26 a detection redirection facet disposed in a plane approximately perpendicular to
said illumination redirection facet;
28 a read window disposed between said illumination redirection facet and said
detection redirection facet and adapted to accept light in a direction approximately
30 perpendicular to said illumination input guide;

a detection guide approximately parallel to said illumination light guide and in optical communication with said detection redirection facet; and a detection output adapted to output light from said detection guide.

12. The molded, waveguiding optical format of claim 11 wherein said illumination light guide has an illumination guide cross-sectional area of approximately 0.50 mm^2 and said detection guide has a detection guide cross-sectional area greater than approximately 0.80 mm^2 .

13. A method of optically analyzing a sample comprising:
harvesting the sample into a optical waveguiding format;
directing light into an illumination input area of said format and from the illumination input area to an illumination light guide;
redirecting light overilluminating said illumination light guide away from said illumination light guide;
allowing said light to be optically guided through said format and through said sample; and
detecting light from a detection output of said format.

14. The method of claim 13 wherein redirecting light overilluminating said illumination light guide further comprises forming a reference beam.

15. The method of claim 13 wherein directing light into an illumination input area of said format includes the step of overfilling an illumination input area of said format.

16. A waveguiding optical format for the optical measurement of a sample comprising:

an input area accepting light into said optical format, said light travelling in an input direction;

first, second, third, and fourth overillumination redirection facets positioned to
2 reflect light from said input direction to a direction approximately perpendicular to said
input direction;

4 an illumination light guide accepting light from said input area and positioned to
direct said light in said input direction;

6 an illumination redirection facet positioned to reflect light from said input
direction to a direction approximately perpendicular to said input direction;

8 a read window adapted to hold a sample and positioned to accept light from said
illumination redirection facet;

10 a detection redirection facet positioned to accept light from said read window and
to reflect light from said read window in a direction approximately parallel to said input
12 direction;

a detection guide accepting light from said redirection facet; and

14 a detection output accepting light from said detection guide and directing said
light outwardly from said optical format.

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17. The optical format of claim 16 wherein said detection redirection facet is further
18 positioned so as to reflect said light in a direction opposite said input direction.

20 18. The optical format of claim 16 further comprising a needle adapted to acquire a
sample and further adapted to direct said sample onto said read window.

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19. The optical format of claim 16 further comprising a capillary adapted to acquire a
24 sample and further adapted to direct said sample onto said read window.

26 20. The optical format of claim 16 wherein said read window has a diameter of
approximately one millimeter.

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